DOCUMENT RESUME

ED 142 898 CG 011 631

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TITLE Inequality in Job Satisfaction.
PUB DATE 1 Mar 76
NOTE 25p.; Paper presented at the Annual Meeting of the Midwestern Sociological Society (St. Louis, Missouri, April 21-24, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Analysis of Variance; *Females; *Income; Interviews; *Job Satisfaction; *Males; *Occupational Clusters; Research Projects; Status; *Vocational Adjustment; *Work Attitudes

ABSTRACT

The relationship between occupational groups and level of overall job satisfaction is examined for a 1972-1973 U.S. sample of males and females. Analysis employing ANCOVA and dummy variables found some support for the relationship between the variables. Significant between-group differences were found for males but not for females. Introduction of earnings, education, and job tenure as covariants did not eliminate the relationship between occupational groups and overall job satisfaction. Tests for interactions revealed that high income can greatly increase job satisfaction, especially in the case of occupations which are not high in prestige. Finally, a decomposition of the between group variance revealed that the occupational groups were more important in terms of explanatory power than either the covariates or the joint effects. (Author)

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ED142898

INEQUALITY IN JOB SATISFACTION

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CG011631

March 1, 1976

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Presented at the Midwest Sociological Meetings in St. Louis, Missouri April 1976.

Researchers in the area of social inequality, especially those interested in occupational inequality, have taken a renewed interest in job satisfaction as a relevant outcome of employment. Christopher Jencks', Inequality: A Reassessment of the Effect of Family and Schooling in America, included some preliminary results of the 1969-1970 Quality of Employment Survey study of job satisfaction. The research reported here should be viewed as an attempt to go beyond the preliminary results Jencks reported, providing a more systematic examination of the relationship between occupational groups and job satisfaction based on more recent data.

The objective is to determine the extent to which a particular context, United States Census Occupational Classification (occupational groups), influence the satisfaction of a worker. More specifically, the objectives are: 1) to determine if the occupational groups have a significant effect for both men and women, 2) to determine if these are non-additive effects: between group differences in how the relevant variable exert their influence on job satisfaction, 3) to determine if there exists additive effects: between group differences in the level of job satisfaction.

Theory and Previous Research

Blauner is the sociologist most often associated with the differential incidence of job satisfaction. Blauner (in Galenson and Lipset, 1960 and Blauner, 1964) presented the first systematic reports of the social psychological manifestation (job satisfaction) of the estrangement of the workers from the means of production

(alienation) (Blauner, 1960:343). This early research (Blauner, 1960:342) demonstrated that significant differences in levels of job satisfaction existed. These systematic differences reflect two aspects; first, significant differences between industries, and secondly, significant differences between occupational groups. Referring to the occupational groups, the dimension of interest in this research, Blauner reported (Galenson and Lipset, 1960:341) "when a scale of relative job satisfaction is formed, based on general occupational groupings, the resulting rank order is almost identical with the most commonly used occupational status classifications."

In attempting to explain the sources of the differences, Blauner (1960:343) suggested four contributing factors: occupational prestige, control over work, integrated work groups, and occupational communities. The most important of these factors was thought to be occupational prestige (1960:344). Prestige appeared to be important for several reasons. Prestige subsumes other factors such as level of skill, responsibility, and level of supervision. Prestige is also important because status may become a direct reward or relevant outcome of employment itself.

Jencks' (1972) widely read Inequality: A Reassessment of the Effect of Family and Schooling in America, takes up the issue of job satisfaction concentrating on zero-order correlations between job satisfaction and some individual level variable thought to influence job satisfaction. Jencks suggests (1972:247) that the 1969 study contains several findings which are surprising

in light of previous research. Jencks reports that his preliminary tabulations do not show the relationships and determinants of job satisfaction that earlier research indicated. For example, Jencks (1972:247) reports an overall correlation between occupational prestige and overall job satisfaction of r = .20.

Jencks found other zero-order results which he suggested were rather startling. The reported correlation (Jencks 1972:249) between earnings and job satisfaction, was said to be r = .38. The relationship between education (measured in years of schooling), and job satisfaction, produced a correlation coefficient of r = .12. Most of the previous research about job satisfaction suggested that occupations which required more education had a more interesting content and were therefore more satisfying. The very low correlation here is both interesting and confusing, as Jencks (1972:248) also reports that "having a challenging job" is highly valued by workers. The two phenomena seem very similar.

Both the Blauner study and the Jencks research suffer some major shortcomings. By today's standards, Blauner's research was not methodologically sophisticated because the conclusions were based on percentage table results. Using percentage techniques, Blauner was unable to control for other relevant variables. Other studies, such as Centers (1949), Kornhauser (1952), and Morse and Weiss (1955), have supported Blauner's findings, but have shared his problem of inadequate statistical controls. The Jencks study,

generally very statistically sophisticated, fails badly when it employs only zero-order correlations in its investigation of the determinants of job satisfaction. The superficial nature of the Jencks chapter is probably due to the fact that the 1969-1970 Quality of Employment Survey was only recently completed and not fully analyzed.

What is obviously needed to clarify the situation with regards to job satisfaction, is a sophisticated test of Blauner's main finding, the relevance of occupational groups for job satisfaction, while the effects of individual level confounding variables are controlled. The occupational groups, based on the 1960 United States Census Occupational Classificaitons, are the basic context of interest in the present research.

Jencks (1972:247-249) has suggested some of the compositional or individual level variables which may confound the influence of the occupational categories. While Jencks (1972:248) reported what he felt was a low correlation between earnings and job satisfaction ($r = .38$), not everyone would agree with his interpretation. The history of job satisfaction research, especially that of Lawler and Porter (1963), supports the relationship between earnings and satisfaction.

Blauner (1960:341) suggested that certain normative aspects of job satisfaction must also be recognized. Length of service, or employee tenure, should be considered important because there is (Blauner, 1960:341) "a tendency for people to identify with or at least be positively oriented toward, those social arrangements in

which they are implicated." It follows that the longer one has been in a particular social arrangement, the more positively oriented he or she is likely to become.

As Jencks noted (1972:248), the level of education is often considered to be related to job satisfaction. Educational requirements are often the intrinsic interest of a job; and more interesting jobs are usually more satisfying. Levels of education are also related to job satisfaction in that to some extent, education plays an important role in differentiating jobs by level of skill required, and the amount of supervision the worker will receive.

The final variable of interest is sex. Traditional research on job satisfaction has studied either males only, or has not differentiated males and females. Prudent researchers in the 1970's consider the differerential arrangement of men and women in the occupational structure to be a significant factor (Walsman and McEddy, 1974:10).

Methods

Recent advances (Hauser, 1971) in regression techniques have made it possible to conduct contextual analysis by the use of covariance analysis (ANCOVA) and dummy variables. In this study, occupational groups are viewed as treatment groups and compositional factors such as earnings, education, and job tenure are viewed as covariates. Separate analysis will be reported for men and women. This procedure allows for controlling on the variables known to

influence job satisfaction, thus the independent effects of the occupational groups can be estimated. The ANCOVA model requires and allows for assessing both additive and non-additive effects, and provides for obtaining adjusted means for the categories after controls on the covariates.

The analysis proceeds by examining effects of occupational groups in a set form, which runs as follows: First, significant tests are performed on regression models for men and women containing only the dummy variables for the occupational groups. This test provides an estimate of the maximum variance explainable by the occupational groups and tests for significant differences between the means. Second, non-additive effects or interactions are examined. A regression model for satisfaction is run on a set of dummy variables for the occupational groups and the covariates. A second model, which includes all of the terms in the first model, plus a set of terms for the interactions with the covariates, is also run. An F ratio is used to test the increment in R^2 for statistical significance (Cohen, 1968:435). If no significant interactions are found, the additive effects may be examined. The independent influence of the occupational groups is estimated by comparing the explained sum of squares of the two regression models, one in which satisfaction is regressed only on the covariates, and a second in which satisfaction is regressed on the covariates and on the dummies. At this point, the covariance adjustment can be made to obtain adjusted means for the occupational groups, i.e.

means on the dependent variable after equalizing on the covariates. The final stage of the analysis is a decomposition of the between group variance, which can be conducted to determine the portions explained by compositional differences, occupational groups, or joint effects.

Data

The data used in this research represents a subpopulation of the more general population sampled for the 1972-1973 National Study of Working Conditions conducted by the Survey Research Center of the Institute for Social Research, in the University of Michigan. The universe sampled for this study, consisted of the currently employed workers living in dwellings in the United States in the Fall of 1972 and early 1973. Persons living in group quarters, institutional populations, and persons with no place of residence were excluded. Workers are eligible to be interviewed if they were 16 years of age or older, and worked 20 hours or more per week. In the present study, this criteria was further delineated to include only those working 35 hours or more per week, so as to exclude part-time workers.

Persons on strike, vacation, or away from work due to illness, weather, or personal reasons, were included since interviews were obtained from all eligible workers in a household. Each worker had an equal probability of being selected; the sample was therefore self-weighting. Interviews were successfully completed with 1,496 workers. Selection of full time workers only, the exclusion of

self-employed workers, and list-wise deletion procedures, reduced the working sample size to 709 for males and 318 for females.

The variables used in this study are as follows. Occupational groups (OG) were based on the respondant's present job code of the 1960 Census Occupation Classifications. For men, the groups were: professional, technical, and kindred workers; managers, officials, and proprietors; clerical and kindred workers; sales workers; craftsmen, foremen, and kindred workers; operatives and kindred workers; service workers, except private household workers; and laborers, except farm and mine workers (mine workers are included in "operatives"). Private household workers were combined with laborers in the analysis for males but not for females. Farm managers, owners, and farm laborers were excluded from the analysis for both males and females. There were no female subjects who reported occupations which are in the laborers category.

Other variables which have been shown to influence the dependent variable, directly or indirectly, are as follows. Education (ED) was divided into eight response categories based on years of schooling. Midpoint values for the categories were assigned and ranged from one to eighteen years of schooling. Length of service (LOS) or job tenure was also divided into eight response categories. Midpoint values, in months of service, were assigned ranging from one month to twenty-four months of service. Income (INC) was a continuous variable which could take on any value between one and 99,997 dollars. The dependent variable, overall job satisfaction, was measured by the question "All in all, how satisfied would you

say you are with your present job--very satisfied, somewhat satisfied, not too satisfied, or not at all satisfied?"

Findings

Significance of Categories

An initial estimate of the maximum amount of variance which can be explained by the occupational groups was obtained by regressing job satisfaction on the sets of dummy variables created to represent the groups (Hauser, 1971:20). The results of this regression analysis are presented in Table One.

Insert Table One Here

The obtained R^2 for the regression of the occupational dummies on job satisfaction for males was $R^2 = 0.0409$, explaining approximately 4% of the variance. For females, the occupational groups explained only 1% of the variance, $R^2 = 0.0145$. Tests of significance for the difference between means were performed in the manner suggested by Cohen (1968:430). The obtained F value for male occupational groups was statistically significant, but the obtained value for females was not. The unadjusted mean values of the occupational groups for both sexes are presented in Table 5. Given that the R^2 values from the regression analysis presented in Table 1 represent the maximum possible influence of the occupational group, and that this value was not statistically significant for females, the analysis of job satisfaction for females was not continued.

Non-Additive Effects

Regression equations were created to test the additivity of the model using first order interaction terms for each of the covariates and the dummies. The results of the increment in R^2 tests are presented in Table 2 below. A statistically significant interaction between income and the dummies representing the occupational groups did appear.

Insert Table Two Here

The interaction between income and the occupational groups was analyzed by creating dummy variables for three income groups; zero to $6,000; $6,001 to $15,000; and $15,001 and above. The mean values for job satisfaction were then compared for each of the occupational groups over three levels of income. The results of this analysis are presented in Table 3.

Insert Table Three Here

An examination of the unadjusted means presented above suggest that the interaction of income and occupational groups requires a complex interpretation. The primary departure from additivity discernable in this table is the relative size of change as we move up the income scale. For most workers, being in a category of high pay increases satisfaction almost twice as much as moderate pay increases satisfaction over low pay. This is especially true of craftsmen, salesworkers, and operatives. In general, very good pay

seems to produce very high levels of job satisfaction. The other departure from additivity apparently involves some subjective comparisons. Clerical workers and laborers at the bottom of the white collar and blue collar groups respectively, in general report rather low levels of job satisfaction. When their poor relative positions are compounded by low wages, the reported job satisfaction plunges.

Additive Effects

This stage of the analysis sought to examine the importance of the occupational groups as explanatory variables after controlling for variables which have been suggested as confounding factors. The variables which were statistically controlled are referred to as covariates. Examining Table 1, one finds the R^2 values for the model containing only the covariates and a second R^2 for another model which contains the covariates and the dummy variables for the occupational groups. The F ratio for these two models is statistically significant at the .01 level (F=3.471). This indicates that there exists a main effect for the occupational groups after controlling for other relevant variables.

Insert Table Four Here

Table 4 presents the unadjusted and adjusted means for the occupational groups. The change from unadjusted to adjusted means by controlling on education, length of service, and income is generally small. A more precise comparison of the relative influence of the covariates and the occupational groups was obtained through a decom-

position of the between group variance. This analysis is reported in Table 5 below. The decomposition of variance procedure suggests that occupation group dummy variables are responsible for most of the between group variance explained. In terms of per cent of total variance explained, the occupational groups account for approximately 5% and the covariates only .2%.

Discussion and Conclusions

The early analysis in this report produced some interesting but limited information about women in the labor market. The tests of R^2 for the significance of differences between means demonstrated that occupational groups have no significant effect on job satisfaction for women. Given the structure of this particular test, which allows for the maximum effect of the groups, it is surprising that gross differences in jobs, such as being a professional worker as compared to a service or private household worker, did not produce significant differences between the means. This finding is even more startling when we remember that only workers working more than 35 hours per week are included. These findings suggest that future investigations of job satisfaction of female workers must be prepared to use different models for explaining job satisfaction. Clearly, the factors which explain job satisfaction for males and females are not identical.

Having found strong evidence of the existence of the influence of occupational groups on job satisfaction we must ask ourselves about the meaning of these effects. Blauner first recognized the importance of occupational groups and suggested a close relationship with

occupational prestige. Table 6 presents the means for the occupational groups where they are arranged in descending order by average Duncan score. The column at the extreme right, labelled "sequence: gives the ordinal position of the adjusted mean for the occupational group, relative to the others.

Insert Table Six Here

The obtained values (mean levels of job satisfaction) only suggest broad similarity to the prestige hierarchy. Those at the top and at the bottom are in their proper positions but the middle groups do not have a discernable pattern. Removal of the clerical group would bring some order to the hierarchy. In the earlier analysis of non-additive effects, it was suggested that the unusually low job satisfaction of clerical workers might be due to subjective comparisons to other white collar workers. This might account for their low level of satisfaction. We might also suggest that the lack of a discernable pattern in Table 6 may tell us something about the way prestige operates on workers. Examining Table 6, we find that the sequencing is generally in order from top to bottom with more confusion or inversions in the middle and more clarity at the extremes. This patterning could lead to the conclusion that occupational prestige has its greatest impact where it is most noticeable; at the extremes. Very low prestige probably decreases satisfaction and very high prestige, such as associated with the professions probably increases satisfaction. In the middle ranges of the prestige continuum, where the sorting of prestige is less obvious, the

effect of prestige on satisfaction is probably much smaller.

If prestige is unsatisfactory for understanding differing job satisfactions, what other factors could be responsible? Table 7 arranges the means (unadjusted and adjusted) in another manner. Table 7 presents the occupational groups ranked by average income as reported from census data.

Insert Table Seven Here

Comparing the sequencing of the groups by income with the sequencing of the unadjusted mean satisfaction, we find a strong and clear pattern whereby the level of satisfaction of an occupational group closely parallels its relative income position. As determinants of income, Blauner (1960:343) has mentioned the importance of control over work and responsibility. Workers who can successfully control their own work or the work of others, have shown higher than anticipated job satisfaction (see craftsmen, foremen, and kindred workers). In addition, workers who are in positions of control or authority are paid a higher wage.

Finally, the information gathered from Tables 6 and 7 can be compared. The general picture is that the different levels of job satisfaction experienced by the different occupational groups seem to be related more to phenomena associated with income rather than with occupational prestige. This conclusion can be further emphasized if we are speaking only of prestige as an outcome and if we note that the sequence is the same for both adjusted and unadjusted means in Table 7. In other words, if we compare

outcome prestige with income and income associated phenomena, the latter seem to be more important in understanding differential job satisfaction.

An apt conclusion to this research should go beyond stating that significant group effects have been found for males but not for females; that income was found to interact with job satisfaction, and the importance of income and income associated phenomena; to a statement of the implications of these findings. Contradicting some trends in recent sociological research, this study has demonstrated a statistically significant between group effect. While the group effect explains a relatively small portion of the total variance, an examination of Table 5 indicates the importance of the group effects relative to the covariates.

Thus, this research can be seen as supporting the early research of Blauner, at least in terms of the importance of occupational groups, and in contradiction with Jencks. Future research in this area should focus variables such as level of skill and level of supervision and their relationship to both income and occupational prestige.

Table 1. Summary of Tests for Additive Effects on Job Satisfaction: Full Time U.S. Male Workers Age 16-65.

	R^2	F at .01	df_1, df_2	F	Significant
Males					
Job Satisfaction with OC	.0409	2.64	7,701	4.2941	*
Females					
Job Satisfaction with OC	.0145	2.64	7,312	.667	*
Males - F Ratios					
Satisfaction with Covariates	.0559				
		2.41	9,696	3.471	*
Satisfaction with Covariates and Dummies	.0966				

Table 2. Summary of Tests for Non-Additive Effects:
Full Time U.S. Male Workers Age 16-65

Model	R^2	F-Ratio	Significant
Males			
1. ED with Dummies (OC)	.0538	F=2.263	
2. ED with Dummies (OC) and Interaction terms	.0749		
3. INC with Dummies (OC)	.0610	F=3.061	*
4. INC with Dummies (OC)	.0891		
5. LOS with Dummies (OC)	.0734	F=1.381	
6. LOS with Dummies (OC) and Interaction terms	.0861		
F at .01 = 2.64			

Table 3. Mean Values for Occupational Groups Over Different Levels of Income: Full Time U.S. Male Workers Age 16-65.

Occupational Groups	$0 to $6,000	$6,001 to $15,000	$15,001 and Above
Professional	3.400 (3)*	3.519 (2)	3.622 (6)
Managers	3.691 (1)	3.514 (3)	3.704 (4)
Craftsmen	3.429 (4)	3.420 (5)	3.882 (1)
Sales Workers	3.667 (2)	3.575 (1)	3.792 (2)
Clerical	2.500 (8)	3.302 (6)	-----
Operatives	3.091 (6)	3.274 (7)	3.714 (3)
Service	3.231 (5)	3.444 (4)	3.667 (5)
Laborers	2.857 (7)	3.133 (8)	-----
Group Mean	(3.259)	(3.411)	(3.713)
Grand Mean = 3.3850			
N =	108	591	150

*Numbers in Parentheses give Sequence by Mean Level of Satisfaction

Table 4. Unadjusted and Adjusted Mean Job Satisfaction: Full Time U.S. Workers Age 16-65

Occupational Groups	Males		Females
	Unadjusted	Adjusted*	Unadjusted
Professional	3.5334	3.3755	3.4516
Managers	3.4857	3.2607	3.3158
Clerical	3.1273	2.9337	3.3272
Craftsmen	3.4675	3.2135	3.5000
Sales Workers	3.4286	3.1990	3.3333
Operatives	3.2518	2.9762	3.2200
Pr. Household	combined with laborers		3.7500
Service	3,3959	3.1973	3.3255
Laborers	3.0589	2.8020	No women in this group
	N = 709		N = 318

*Adjusted for Variables: ED, LOS, INC

Table 5. Decomposition of Between Group Variance In Job Satisfaction for Males: Full Time U.S. Male Workers Age 16-65.

Variable	Percent of Between Group Variance Due To:			Percent of Total Variance Due To:		
	Covariates	Joint	Occupational Groups	Covariates	Joint	Occupational Groups
Job Satisfaction	.0677	-.2717	1.2034	.00276	-.0111	.04921
Total			(0.099942)			(0.04087)

Table 6. Unadjusted and Adjusted Mean Job Satisfaction With Occupational Groups Presented in Prestige Order: Full Time U.S. Male Workers Age 16-65.

Category	Average Duncan Score	Unadjusted Mean	Adjusted Mean*	Sequence
Professionals	75	3.5334	3.5256	(1)
Managers	57	3.4857	3.4108	(2)
Sales Workers	49	3.4286	3.3491	(4)
Clerical	45	3.1273	3.0838	(7)
Craftsmen	31	3.4675	3.3636	(3)
Operatives	18	3.2518	3.1263	(6)
Service	17	3.3959	3.3474	(5)
Laborers	7	3.0589	2.9521	(8)

$\bar{X}_{..} = 3.3850$ N = 709

*Adjusted For Variables: ED, LOS, IN

Table 7. Unadjusted and Adjusted Mean Job Satisfaction With Occupational Groups Presented In Order of Average Income: Full Time U.S. Male Workers Age 16-65.

Occupational Groups	Average Income[1]	Unadjusted Mean	Adjusted Mean	Sequence
Professional	14,135	3.5334	3.5256	(1)
Managers	9,267	3.4857	3.4108	(2)
Craftsmen	7,224	3.4675	3.3636	(3)
Sales Workers	6,814	3.4286	3.3491	(4)
Clerical	6,380	3.1273	3.0838	(7)
Operatives	5,858	3.2518	3.1263	(6)
Service	4,532	3.3959	3.3474	(5)
Laborers	3,979	3.0589	2.9521	(8)

$\bar{X}..$ = 3.3850 N = 709

[1] Statistical Abstracts, 1969, Table No. 482, page 327.

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